Carolina M. Siniscalchi

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Professional Preparation

Universidade de São Paulo	Biology, Botany *Dissertation title:* Systematics and Evolution of *Chresta* Vell. ex DC. (Vernonieae, Asteraceae) *Dissertation advisor:* Dr. José Rubens Pirani *Co-advisor*: Dr. Benoit Loeuille	Ph.D. 2018
Universidade de São Paulo	Biology, Botany *Thesis title:* Dalbergieae *s.l.* (Leguminosae, Papilionoideae) at Serra do Cipó, Minas Gerais *Thesis advisor:* Dr. José Rubens Pirani	M.Sc. 2012
Universidade de São Paulo	Biology	Teaching Degree 2012
Universidade de São Paulo	Biology *Undergraduate research:* Tribes Swartzieae, Sophoreae, Dipterygeae, Miletieae, Brongniartieae and Desmodieae (Leguminosae, Papilionoideae) at Serra do Cipó, Minas Gerais *Advisor:* Dr. José Rubens Pirani	B.Sc. 2010

Appointments

Post-Doctoral Associate	MS State Univ.	2020–present
Research Associate	Univ. of Memphis	2018–2019
Graduate Researcher	Univ. de São Paulo	2010–2018
Visiting Research Scholar	Univ. of Memphis	2016–2017
Visiting Research Scholar	Univ. of Memphis	2015
Visiting Student	NMNH	2015
Graduate Teaching Assistant	Univ. de São Paulo	2011
Undergraduate Researcher	Univ. de São Paulo	2009–2010
Undergraduate Teaching Assistant	Univ. de São Paulo	2006
Undergraduate Researcher	Univ. de São Paulo	2005–2006

Grants and Awards

2022 Richard and Minnie Windler Award in Systematics for the paper "Reevaluating genetic diversity and structure of *Helianthus verticillatus* (Asteraceae) after the discovery of new populations", Southern Appalachian Botanical Society.

2019 CBio Seed Grant, University of Memphis Center for Biodiversity Research, US$1000

2019 Association of Southeastern Biologists Research Award for the paper "The systematic value of pollen morphology in *Chresta* Vell. ex DC. (Vernonieae, Asteraceae)", 80th Annual Meeting of the Association of Southeastern Biologists, US$ 1000

2017 Triarch Botanical Images Student Travel Award, 3rd place, US$ 200

2017 Southeastern Section of the Botanical Society of America, Outstanding Student Poster, 78th Annual Meeting of the Association of Southeastern Biologists, US$ 300

2017 Southern Appalachian Botanical Society, Outstanding Student Poster, 78th Annual Meeting of the Association of Southeastern Biologists, US$ 300

2016 Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP), Doctorate grant for research internship abroad, Sep/2016 – Sep/2017, US$ 26,000 (stipend), PI

2014 Smithsonian Institution, NMNH, Cuatrecasas Fellowship Award, Jan/2015 – Feb/2015, US$ 3,000

2014 Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP), Doctorate grant, Jan/2014 – Jan/2018, R$ 136,000 (stipend, ~US$ 39,000 at 2014 exchange rate), PI

2010 Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP), Master's grant, Aug/2010 – Aug/2012, R$ 37,000 (stipend, ~US$ 10,000 at 2010 exchange rate), PI

2009 Santander Foundation, Undergraduate research grant, Oct/2009 – Jun/2010, R$ 2,700 (stipend, ~US$ 700 at 2009 exchange rate), PI

Peer Reviewed Publications

30. Palazzesi, L., Pellicer, J., Barreda, V.D., Loeuille, B., Mandel, J.R., Pokorny, L., **Siniscalchi, C.M.**, Tellería, M.C., Leitch, I.J. & Hidalgo, O. 2022. Asteraceae as a model system for evolutionary studies: from fossils to genomes. *Botanical Journal of the Linnean Society* https://doi.org/10.1093/botlinnean/boac032.

29. Doby, J., Li, D., Folk, R., **Siniscalchi, C.M.** & Guralnick, R. 2022. Aridity drives diversity of nitrogen fixing plants in North America. *Global Ecology and Biogeography* 31(8): 1630–1642.

28. Gorneau, J.A., Ausich, W.I., Bertolino, S., …, **Siniscalchi, C.M.,** …, Esposito, L.A. 2022. Framing the future for taxonomic monography: improving recognition, support, and access. *Bulletin of the Society of Systematic Biologists* 1: 8328.

27. BFG – The Brazil Flora Group. 2021. Brazilian Flora 2020: Leveraging the power of a collaborative scientific network. *Taxon* 71(1): 178–198.

26. Moore, E.R., **Siniscalchi, C.M.** & Mandel, J.R. 2021. Reevaluating genetic diversity and structure of *Helianthus verticillatus* (Asteraceae) after the discovery of new populations. *Castanea* 86(2): 196–213.

25. Siniscalchi, C.M., Hidalgo, O., Palazzesi, L., Pellicer, J., Pokorny, L., Maurin, O., Leitch, I., Forest, F., Baker, W.J. & Mandel, J.R. 2021. Lineage-specific vs. universal: comparison of the Compositae1061 and Angiosperms353 enrichment panels in the sunflower family. *Applications in Plant Sciences* 9(7): e11422.

24. Siniscalchi, C.M., Edwards, R.D., Gomez, J.L., Moore, E.R. & Mandel, J.R. 2021. Photosynthesis metabolism in the Compositae: Current knowledge and future directions. *Taxon* 70(2): 339–350.

23. Kates, H., Doby, J.R., **Siniscalchi, C.M.**, Lafrance, R., Soltis, D.E., Soltis, P., Guralnick, R., Folk, R. 2021. The effects of herbarium specimen characteristics on short-read NGS sequencing success in nearly 8000 specimens: Old, degraded samples have lower DNA yields but consistent sequencing success. *Frontiers of Plant Science* 12: 669064.

22. Thode, V., Oliveira, C.T., Loeuille, B., **Siniscalchi, C.M.** & Pirani, J.R. 2021. Comparative analyses of *Mikania* (Asteraceae: Eupatorieae) plastomes and impact of data partitioning and inference methods on phylogenetic relationships. *Scientific Reports* 11:13267.

21. Folk, R. & **Siniscalchi, C.M.** 2021. Biodiversity at the global scale: The synthesis continues. *American Journal of Botany* 108(6): 1–13.

20. Antar, G.M., **Siniscalchi, C.M.**, Gonella, P.M., Monge, M. & Loeuille, B. 2021. Novelties in Lepidaploinae (Asteraceae, Vernonieae) from the easternmost campos rupestres of Minas Gerais, Brazil: two new species and a range expansion. *Plant Ecology and Evolution* 154(1): 121–136.

19. Loeuille, B., Thode, V., **Siniscalchi, C.M.,** Andrade, S., Rossi, M. & Pirani, J.R. 2021. Extremely low nucleotide diversity among thirty-six new chloroplast genome sequences from *Aldama* (Heliantheae, Asteraceae) and comparative chloroplast genomics analyses with closely related genera. *PeerJ* 9: e10886.

18. Folk, R.A., **Siniscalchi, C.M.** & Soltis, D.E. 2020. Angiosperms at the edge: Extremity, diversity, and phylogeny. *Plant, Cell & Environment* 43(12): 2871–2893.

17. Lichter-Marck, I.E., Freyman, W.A., **Siniscalchi, C.M.**, Mandel, J.R., Castro-Castro, A., Johnson, G. & Baldwin, G.B. 2020. Phylogenomics of Perityleae (Compositae) provides new

insights into morphological and chromosomal evolution of the rock daisies. *Journal of Systematics and Evolution* 58(6): 853–880.

16. Watson, L.E., **Siniscalchi, C.M.** & Mandel, J. 2020. Phylogenomics of the hyperdiverse daisy tribes: Anthemideae, Astereae, Calenduleae, Gnaphalieae, and Senecioneae. *Journal of Systematics and Evolution* 58(6): 841–852.

15. Carrasco-Harris, M.F., Mandel, J.R., **Siniscalchi, C.M**., Reichling, S. & Cole, J.A. 2020. Population Genetics of Copperheads (*Agkistrodon contortrix*) within an Urban Forest. *Herpetological Review* 51(1): 1–7.

14. Siniscalchi, C.M., Loeuille, B., Pirani, J.R., & Mandel, J.R. 2019. Using genomic data to develop SSR markers for species of *Chresta* (Vernonieae, Asteraceae) from the Caatinga. *Brazilian Journal of Botany* 42(4): 661–669.

13. Jones, K.E., Fér, T., Schmickl, R.E., Dikow, R.B., Funk, V.A., Herrando-Moraira, S., Johnston, P.R., Kilian, N., **Siniscalchi, C.M.,** Susanna, A. & Slovák, M. 2019. An empirical assessment of a single family-wide hybrid capture locus set at multiple evolutionary timescales in Asteraceae. *Applications in Plant Sciences* 7(10): e11295.

12. Siniscalchi, C.M., Loeuille, B.F.P., Funk, V.A., Mandel, J.R. & Pirani, J.R. 2019. Phylogenomics yields new insight into relationships within Vernonieae (Asteraceae). *Frontiers in Plant Science* 10: 1224.

11. Mandel, J.R., Dikow, R.B., **Siniscalchi, C.M.,** Thapa, R., Watson, L.E. & Funk, V.A. 2019. A fully resolved backbone phylogeny reveals numerous dispersals and explosive diversifications throughout the history of Asteraceae. *Proceedings of the National Academy of Sciences* 116(28): 14083–14088.

10. Siniscalchi, C.M., Loeuille, B.F.P., Siqueira Filho, J.A. & Pirani, J.R. 2019. *Chresta artemisiifolia* (Vernonieae, Asteraceae), a new endangered species from a recently created protected area in the Brazilian Caatinga. *Phytotaxa* 399(2): 119–126.

9. Siniscalchi, C.M., Loeuille, B.F.P. & Pirani, J.R. 2018. Two new rupicolous species of *Chresta* (Asteraceae, Vernonieae) from the Brazilian Caatinga. *Systematic Botany* 43(4): 1059–1071.

8. BFG – The Brazil Flora Group. 2018. Brazilian Flora 2020: Innovation and collaboration to meet Target 1 of the Global Strategy for Plant Conservation (GSPC). *Rodriguésia* 69(4): 1513–1527.

7. Mandel, J.R., Barker, M.S., Bayer, R.J., Dikow, R.B., Gao, T.G., Jones, K.E., Keeley, S., Kilian, N., Ma, H., **Siniscalchi, C.M.,** Susanna, A., Thapa, R., Watson, L. & Funk, V.A. 2017. The Compositae tree of life in the age of phylogenomics. *Journal of Systematics and Evolution* 55(4): 405–410.

6. Siniscalchi, C.M., Souza-Souza, R.M.B., Loeuille, B., Pirani, J.R. & Gonçalves-Esteves, V. 2017. The systematic value of pollen morphology in *Chresta* Vell. ex DC. (Vernonieae, Asteraceae). *Review of Palaeobotany and Palynology* 244: 182–191.

5. Siniscalchi, C.M., Loeuille B., Semir, J. & Pirani, J.R. 2016. *Lychnophora spiciformis* (Asteraceae:

Vernonieae), a new species from Bahia, Brazil. *Phytotaxa* 253(1): 48–56.

4. Siniscalchi, C.M., Loeuille, B.F.P., Pirani, J.R., 2016. A new species of *Chresta* (Vernonieae, Asteraceae) endemic to the Mata Atlântica Domain, Brazil. *Phytotaxa* 244(1): 80–88.

3. BFG – The Brazil Flora Group. 2015. Growing knowledge: an overview of Seed Plant diversity in Brazil. *Rodriguésia* 66: 1–29.

2. Loeuille, B., **Siniscalchi, C.M.,** Pirani, J.R., 2014. New names in Vernonieae (Asteraceae) of northeastern Brazil. *Phytoneuron* 2014–9: 1–11.

1. Wagner, M.A., Loeuille, B.F.P., **Siniscalchi, C.M.**, Melo-de-Pina, G.F. & Pirani, J.R. 2013. Diversity of non-glandular trichomes in subtribe Lychnophorinae (Asteraceae: Vernonieae) and taxonomic implications. *Plant Systematics and Evolution* 300(5): 1219–1233.

Publication Under Review

Coutinho, J.W., Loeuille, B.F.P., **Siniscalchi, C.M.**, Oliveira, F.M.C., Rodrigues, A.C. & Lusa, M.G. Evolution of the occurrence of phytomelanin in aerial stems of Vernonieae (Asteraceae). Under review at *Perspectives in Plant Ecology, Evolution and Systematics*.

Technical Publications

Siniscalchi, C.M., Loeuille, B. & Roque, N. 2021. Asteraceae in a megadiverse flora: results from the Flora of Brazil 2020. *Capitulum* 1(1): 54–60.

Gonella, P., **Siniscalchi, C.M.** & Loeuille, B. 2021. Where Linnaeus meets Wallace: new botanical discoveries highlight the biological shortfalls in the easternmost "campos rupestres" of Minas Gerais, Brazil. *Capitulum* 1(1): 48–53.

Siniscalchi, C.M. *Chresta* in Flora do Brasil 2020. Jardim Botânico do Rio de Janeiro. Available at: http://reflora.jbrj.gov.br/reflora/floradobrasil/FB25219.

Siniscalchi, C.M. *Strophopappus* in Flora do Brasil 2020. Jardim Botânico do Rio de Janeiro. Available at: http://reflora.jbrj.gov.br/reflora/floradobrasil/FB25266.

Mentoring and Training Experience

Summer 2022	**Dexcem Pantinople, PhD student, MS State University** Training in data analysis methods related to phylogenomics and population genomics.
Fall 2021	**Tajinder Singh, undergraduate student, MS State University** Training in the context of a REU Supplemental Funding. Training in plant

anatomy techniques applied to floral microcharacters and microscopy imaging.

Summer 2021 **Reagan Conner, undergraduate student, MS State University**
Training in the context of a REU Supplemental Funding. Training in laboratory techniques focused on metagenomics (DNA extraction from several plant tissues aiming at bacterial and fungal DNA, PCRs, gel electrophoresis). Resulted in the presentation of a poster at Botany 2021.

Summer 2019 **Jorge L. Gomez, undergraduate student, Univ. Memphis**
Mentoring in the context of a REU Supplemental Funding. Training in several molecular biology techniques (DNA extraction, PCRs, gel electrophoresis, Illumina library preparation, quantification methods) and bioinformatics (chloroplast genome assembly, phylogenetic analysis, scoring of microsatellites). Resulted in the presentation of a poster with the undergraduate as first author at Botany 2019 and authorship in a published manuscript.

Fall 2018 **Erika Moore, PhD student, Univ. Memphis**
Training in laboratory techniques and data analysis related to population genetics and microsatellites, resulting in a published article about genetic diversity and structuring of *Helianthus verticillatus*. Additional training in phylogenomics methods (library preparation and hybrid capture).

Fall 2017 **Malle Carrasco-Harris, PhD student, Univ. Memphis**
Training in laboratory techniques and data analysis related to population genetics and microsatellites. Resulted in a published manuscript about urban populations of copperheads.

Fall 2017 **Steven Ballou, MSc student, Univ. Memphis**
Training in laboratory techniques related to microsatellite genotyping (DNA extractions, quantification methods, PCRs, gel electrophoresis).

Summer 2017 **Gabbie Johson, undergraduate student, Univ. Memphis**
Training in laboratory techniques related to microsatellite genotyping (DNA extractions, quantification methods, PCRs, gel electrophoresis).

Fall 2016 **Sonia Herrando-Moraira, PhD student, Univ. Memphis**
Training in phylogenomics laboratory techniques and bioinformatic analysis (Illumina library preparation, Hyb-Seq, quantification methods, genome assembly, phylogenetic analysis).

Fall 2014 **Nívea Pinheiro, undergraduate student, Univ. São Paulo**
Training in field collection techniques and pollination observation methods, during field expeditions in the Brazilian Cerrado.

Spring 2014 **Kyoshi Peralta, undergraduate student, Univ. São Paulo**
Training in field collection techniques and herbarium specimen preparation, during field expeditions in the Brazilian Caatinga.

Teaching

2022 **Taxonomy of Spermatophytes**, 4000/6000 level course, Mississippi State University, co-instructor of record.

2022 **Biodiversity data wrangling: Linking large phylogenies with species traits and ecologies**, workshop at the Botany 2022 conference, co-creator and instructor. Material available at https://github.com/carol-siniscalchi/BiodiversityDataWrangling.

2021 **Introduction to NGS and Applications to Systematics (online)**, graduate course, Universidade de São Paulo – campus Ribeirão Preto, instructor of record. Material available at https://github.com/carol-siniscalchi/IntroNGS.

2021 **Plants, People and Power (online)**, seminar-based graduate course, Mississippi State University, co-creator and instructor.

2019 **Bioinformatics Workshop,** training for graduate students, post-docs and professors, University of Memphis, co-creator and instructor.

2018 **Introduction to NGS and Applications to Systematics**, graduate course, Universidade de São Paulo, instructor of record.

2018 **Introduction to NGS and Applications to Systematics**, graduate course, Universidade Federal do Pernambuco, instructor of record.

2014 **Introduction to NGS and Applications to Systematics**, graduate course, Universidade Federal de Santa Catarina, instructor of record.

2011 I **Botânica no Inverno,** outreach course for undergraduate students organized by graduate students, Universidade de São Paulo.

2011 **Diversity and Evolution of Photosynthetic Organisms,** undergraduate course,

Universidade de São Paulo, teaching assistant.

2006 **Cell Biology,** undergraduate course, Universidade de São Paulo, teaching assistant.

Invited Talks

May 2022	Botanical Society of Washington, Washington D.C. (online) An overview of the ironweed tribe: systematics, morphology and evolution of tribe Vernonieae (Asteraceae)
April 2022	Rhodes College, Memphis, TN (online) Understanding the drivers of diversification in flowering plants
September 2020	University of South Alabama, Mobile, AL (online) Phylogenomics as basis for evolutionary studies
June 2020	Digital Symposium of Plant Systematics and Evolution, Brazil (online) Compositae Phylogenomics: where we are and where we are going next
January 2019	Plant and Animal Genome Conference, San Diego, CA Phylogenomics of *Chresta* and implications for relationships within tribe Vernonieae

Conference Participation and Presentations

International Botanical Congress: 2017
Botanical Society of America: 2017, 2019, 2020, 2021, 2022
Association of Southeastern Biologists: 2017, 2019, 2022
The International Compositae Alliance Meeting: 2018
Latin American Botanical Congress: 2015, 2018
Brazilian Botanical Congress: 2010, 2013, 2014, 2015
South American Compositae Meeting: 2011
International Legumes Conference: 2010

Participation in Workshops/Outside Courses

2021/2022	**Preparing Future Faculty Program** Program held at MS State University aiming to prepare graduate students and post-docs to apply for tenure track jobs.
2020	**Stay-at-Home RevBayes Workshop Summer 2020 (online)** Introductory workshop to Rev language and programming in the RevBayes software.

2016 **Introducción a la morfología y clasificación de la familia Compositae**
Workshop about the sunflower family offered at Universidad de la República, Uruguay, organized by Dr. Maurício Bonifacino and Dr. Vicki Funk.

Service to the Profession

Manuscript Referee: *Acta Botanica Brasilica, American Journal of Botany, Applications in Plant Sciences, BMC Plant Biology, Botanical Journal of the Linnean Society, Brazilian Journal of Botany, Capitulum, CheckList, Cladistics, Edinburgh Journal of Botany, Frontiers in Plant Science, Iheringia, Journal of the Tennessee Academy of Sciences, Kew Bulletin, Molecular Phylogenetics and Evolution, Plants, Phytotaxa, Rodriguésia, Systematic Biology, Systematic Botany, Taxon, Webbia.*

Reviewing Editor at *Applications in Plant Sciences* (2020–2022).

Organizing Committee: co-creator and organizer of TICATalks, the monthly online seminar of The International Compositae Alliance (started January 2021).

Society Membership: American Society of Plant Taxonomists (ASPT), Association of Southeastern Biologists (ASB), Botanical Society of America (BSA), Gulf South Mycological Society (GSMS), The International Compositae Alliance (TICA).

Member of ASB Research Award Committee: 2019–2023.

Member of BSA International Affairs Committee: 2019–2021.

Evaluator for ASPT Graduate Research Awards: 2021, 2022.

Languages

Portuguese	First language
English	Fluent
Spanish	Professional working proficiency
French	Elementary comprehension

References

Dr. Ryan A. Folk
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Dr. Jennifer R. Mandel
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Dr. Robert Guralnick
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Website: https://www.floridamuseum.ufl.edu/nhdept/faculty/